

Docket No. 2000-046CON2
PATENT

REMARKS

Claims 1-25 and 27-30 are now pending in the above-referenced patent application. Applicants respectfully request further consideration of these claims, in view of the amendments set forth above and the following remarks.

Canceled Claims

Claim 26 and 31 have been canceled, without prejudice, to advance the prosecution of the instant application.

Acknowledgement

The Office action does not maintain any rejections made in the prior Office action (dated May 21, 2003) under 35 U.S.C. § 112, 1st paragraph (written description), and such rejections are therefore considered to be withdrawn.

Also, Applicants acknowledge that the Office action does not set forth any prior-art-based rejections of independent claims 3, 14-17 and 21, and claim 2 as depending therefrom. Since the only remaining rejections of these claims are based on obvious-type double-patenting, and since (as discussed below) Applicants have already submitted a terminal disclaimer obviating this basis for rejection, at least these independent claims 3, 14-17 and 21, and claims depending therefrom are in condition for allowance.

Obviousness-Type Double Patenting Rejections

Claims 1-31 have been rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1-35 of U.S. Patent No. 6,333,196. See, paragraph 5 at pages 5-6 of the Office action.

Applicants have previously submitted a terminal disclaimer on November 19, 2003 (accompanying the previously-submitted Amendment C), receipt of which submission was acknowledged by return facsimile. Clarification is respectfully requested as to the status of this terminal disclaimer in the Office records.

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PATENTObjection to Potentially Duplicative Claims

The Office action advises that should claim 7 be allowable, then claim 26 would be objected to as being substantially duplicative of claim 7. See paragraph 1 at page 2 of the Office action.

Applicants have canceled claim 26 to obviate this potential basis for objection.

Rejections Under 35 U.S.C. § 103(a) (Carlson, Gimezewski, Johnson, Kulkova, Schodel and Temkin)

The Office action rejects claims 1, 2 (as depending from claim 30), 4-13, 18-20 and 22-31 under 35 U.S.C. § 103(a) as being obvious over Carlson in view of Gimezewski (newly cited and applied), Johnson (newly applied), Kulkova, Schodel or Temkin. (See paragraph 4 at pages 2-5 of the Office action).

This basis for rejection is moot with respect to claims 26 and 31, each now canceled.

Applicant respectfully traverses this basis of rejection with respect to claims 1, 2 (as depending from claim 30), 4-13, 18-20, 22-25 and 27-30 in view of the following remarks.

The Office action does not set for a *prima facie* case of obviousness, because the prior art would not have motivated a person of ordinary skill to modify the method of Carlson *et al.* in a manner that would have led to Applicant's invention.

The primary reference relied upon does not disclose, teach or suggest simultaneous evaluation of several catalysts as required by independent claims 1 and 30, or in claims depending therefrom. Carlson *et al.* is directed towards the use of a differential thermal analysis (DTA) instrument for measuring activity of auto exhaust catalysts. However, the methodology of Carlson is disclosed only in connection with a discrete particular problem – that is, the comparative analysis of catalytic activity against a known standard for low temperature oxidation of a model auto exhaust gas feed. There is no teaching or suggestion in Carlson *et al.* that such apparatus could be useful as a *generally universal* screening device for evaluating arrays of diverse candidate catalysts for a diverse set of reactions under a diverse set of reaction conditions. Further, the Carlson *et al.* reference does not disclose teach or suggest evaluation of several catalysts that are provided at a plurality of sites on a common support (claim 1), or that are provided in a pressurized parallel batch reactor (claim 30).

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A person skilled in the art would not have been motivated to modify the teachings of Carlson *et al.* in a manner that would have led to Applicants' inventions. As demonstrated below, the requisite motivation is not found in the prior art references.

The Carlson *et al.* reference would not have itself led a person of ordinary skill to Applicants' invention. Notably, Carlson *et al.* disclose several challenges that were encountered in connection with the development of the disclosed screening methodology, including for example (i) finding a thermocouple that was itself not catalytic for the reaction of interest, and (ii) substantial thermal conduction between the test cell and the reference cell. These challenges would have at least led a person of skill in the art away from applying the disclosed analytical device as a general screening reactor (*e.g.*, suitable for any type of reactor chemistry). Especially notable, the conduction concern would have had unfavorable implications for implementing the methodology using a common support for the catalysts, as required by present claim 1.

The secondary references likewise do not provide motivation to arrive at invention as presently claimed.

Gimezewski *et al.* (newly cited and applied) relates to the design and operation of a high-pressure differential thermal analysis (DTA) instrument for comparing lifetimes of lubricating oils, greases, edible vegetable oils and polymers that contain oxidation inhibitors. Although the Gimezewski *et al.* reference discloses simultaneous evaluation of multiple samples, the samples are being evaluated for a completely different purpose – determining the useful lifetime of automotive crankcase oil via an accelerated oxidation test. This reference does not disclose, teach or suggest the use of differential thermal analysis for *screening different catalysts* according to the presently-claimed methods.

Notably, a person of ordinary skill in the art would not have been motivated to combine the Carlson *et al.* and Gimezewski *et al.* references in a manner that would have led to the presently-claimed inventions, because of at least: (i) the different purposes for which the disclosed approaches were applied, and (ii) the vastly different chemistries and operating conditions with which each such reference was concerned. For example, Carlson *et al.* concerned applications of DTA to evaluate catalyst activity in flow reactors under reaction conditions that included relatively high space velocities (ranging from 40,000 hr⁻¹ to 70,000 hr⁻¹), and substantial temperatures (at least exceeding 300 °C, and in some embodiments involving in-situ aging, up to 800 °C), but at moderate pressures. In contrast, Gimezewski *et al.* involved

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applications of DTA for evaluating lubricant lifetime in a non-flow (batch-mode) apparatus under conditions involving more moderate temperatures (up to 250 °C), and at high pressures (up to 70 bar). The significant difference in operating conditions precludes the combination of these references, since the proposed modification of Carlson *et al.* according to the teaching of Gimezewski *et al.* would have made Carlson *et al.* unsuitable or unsatisfactory for its intended purpose – catalytic screening for automotive exhaust catalysts at high space velocities and higher temperatures. See MPEP 2143.02; *In re Gordon*, 221 USPQ1125 (Fed. Cir. 1984).

None of the other references relied upon in the Office action provide any other basis for modifying the teaching of Carlson *et al.* in a manner that would have led to Applicants' invention. In particular, Johnson *et al.* suffers from the same deficiencies as Gimezewski. Also, as noted in the previously-submitted Amendment C, Kulkova *et al.*, Schodel *et al.* and Temkin each teach the use of thermocouples, but only for temperature control. In each of these references, catalytic activity and/or specificity are determined using traditional analytical approaches – e.g., involving sequential gas chromatography. There is no teaching in these references that would have led a person of ordinary skill to modify Carlson *et al.* to arrive at the invention defined by the presently-pending claims. In fact, as explained in Amendment C, the art teaches away from such substitution.

The Office action does not explain *why* a person skilled in the art would have considered Gimezewski *et al.* (involving substantially different chemistries and operating conditions) or the other secondary references as being instructive for catalyst screening according to the claimed methods. The Office sets forth only a conclusory statement asserting that a skilled artisan would have modified Carlson *et al.* "to be able to run multiple samples simultaneously as taught by Gimezewski, Johnson, Kulkova, Schodel or Temkin because of the advantages of multi-sample processing...". (See paragraph 3 at page 5 of the Office action).

However, such rationale is factually unsound since it ignores the above-noted facts that would have dissuaded a person of ordinary skill from such combination.

Such rationale is also legally inadequate, since it appears to be based on impermissible hindsight. The mere fact that such techniques were known in the art does not, by itself, provide the requisite motivation for applying such techniques in the manner claimed by Applicants. That is, the rationale of the Office action is too general, and does not explain why a skilled artisan would have selected the particularly claimed screening technique from among other options.

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Obviousness cannot be established based merely on the fact that the reference could have been combined or modified, unless the prior art also suggests the desirability of the combination. In re Mills, 16 USPQ2d 1430 (Fed. Cir. 1990).

Accordingly, Applicants respectfully submit that independent claims 1 and 30 (and claims depending therefrom) are patentable over the prior art of record.

Equivalents

The amendments to the claims and the arguments presented in supplemental response to the Office action have been made to claim subject matter which the Applicants regard as their invention. By such amendments, the Applicants in no way intend to surrender any range of equivalents beyond that which is needed to patentably distinguish the claimed invention as a whole over the prior art. Applicants expressly reserve patent coverage to all such equivalents that may fall in the range between applicants literal claim recitations and those combinations that would have been obvious in view of the prior art. In particular, as noted above, none of the claims have been narrowed within the meaning of *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 62 USPQ2d 1705 (2002), and Applicants are therefore entitled to the full range of equivalents with respect to each of the presently-pending claims.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

Applicants believe that no further fees are required in connection with the instant Amendment D. If necessary, however, the Examiner is hereby authorized to debit any necessary and required fees in connection with this application, or to credit any overpayment of fees in connection with this application to Deposit Account No. 50-0496.

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Respectfully submitted,



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Paul A. Stone
Reg. No. 38,628

Symyx Technologies, Inc.
3100 Central Expressway
Santa Clara, CA 95051
(408) 773-4027